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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/038,230	03/11/1998	TSUGUO KOYANAGI	1217-980347	8053

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EXAMINER

METZMAIER, DANIEL S

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 12/19/2001

24

Please find below and/or attached an Office communication concerning this application or proceeding.

MF-24

Office Action Summary

Application No.

09/038,230

Applicant(s)

Koyanagi et al.

Examiner

Daniel S. Metzmaier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Oct 1, 2001
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 20) ☐ Other:

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DETAILED ACTION

Claim 1 is pending in the instant application. This action is responsive to the response filed Oct 1, 2001, Paper No. 23.

Claims interpretation

1. Applicant's claim is directed to inorganic oxide sols comprising a modified composite oxide particulates. Said sols have a dielectric constant of 10 to 85, a particle size range of 11 to 30 nanometers, and a specific classes of organosilane compounds. Said compounds are further limited to exhibiting a molecular polarizability of 2×10^{-40} to $850 \times 10^{-40} \text{ C}^2 \text{ m}^2 \text{ J}^{-1}$. Said sols have been limited to a specified silica to other inorganic oxide ratio of 3 to 500.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was

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made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

3. Claim 1 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Enomoto et al., US 5,935,700, in view of Yoneda et al, US 5,316,714. Enomoto et al (abstract, column 3, et seq; examples, and claims) disclose composite particles of silica and at least one other inorganic oxide other than silica. Suitable particles are taught (columns 3 to 4, lines 62 to 10) to range in size from 10 nm to 2 microns. Said range includes applicants claimed range of 10 to 30 nm. Said range is defined only by applicants' examples and applicants teach (page 6, lines 20-23) the size of the composite particulates is not particularly limited as long as the sol is stable.

Enomoto et al (column 7, lines 26-47) teaches the composite oxides may be employed as an organosol in alcohols, glycols and ketones which read on the required dielectric constant claimed. Enomoto et al further teaches the particles may be surface modified by silane coupling agents. Enomoto et al (examples ; particularly example 6) teaches the silica to other oxide ratio within the range of 3 to 500.

Enomoto et al differs from the claims in the particular silane coupling agent treating said composition.

Yoneda et al is cited on the Enomoto et al reference. Yoneda et al teaches glycol dispersions for imparting slipperyness to polyester films. Yoneda et al (column 7, lines 15 et seq) teaches coupling agents for treating the particulate sols including those exhibiting a molecular

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polarizability claimed. Please contrast the Yoneda et al species with those disclosed at page 22, table 1 of the specification.

These references are combinable because they teach providing slipperyness to polymer films. Said references are directed to related art as evidenced by the citation of Yoneda et al on the Enomoto et al patent. It would have been obvious to one of ordinary skilled in the art at the time of applicants invention to employ the coupling agents taught in the Yoneda et al reference as obvious coupling agents conventional in the art and broadly taught in the Enomoto et al reference.

Furthermore, the skilled artisan would have been motivated to employ the aminosilane as an exemplified (table 2c) species for the advantage of providing slipperyness.

Applicants comparative data does not show criticality for the use different silanes having the molecular polarizability in glycol suspensions. Furthermore, applicants state the particle size is critical to the extent a stable sol is formed.

One of ordinary skilled in the art at the time of applicants invention to employ would have reasonably expected the formation of glycol sols surface modified with the silanes of Yoneda et al would have produced stable sols upon reading the Enomoto et al reference in view of the Yoneda et al reference.

Response to Arguments

4. Applicant's arguments filed Oct. 1, 2001 have been fully considered but they are not persuasive.

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5. Applicants (page 6) assert Enomoto never discloses the silane coupling agents specifically claimed. Enomoto teaches formation of the sol dispersions in dispersing media having the claimed dielectric constant. Enomoto (column 7, lines 44-46) specifically teach the surface modification with a silane coupling agent. Vinyl silanes among others are well known coupling agents.

Yoneda et al (column 7, lines 15 et seq) specifically teaches coupling agents as alkoxysilanes having at least one (substituted) alkyl, (substituted) phenyl, or vinyl group in the molecule and list specific examples.

6. Applicants (page 6) assert the claimed compositions are useful with acids, alkalis and surfactants and the prior art is directed to raising affinity of the particles in thermoplastic resins. The compositions would have been obvious for use in thermoplastic resins as taught in the prior art. In response to applicant's argument that the use in cement, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. The use of the coupling agents taught in Yoneda et al were clearly within a reasonable reading of the Enomoto et al reference.

7. Regarding (page 7) applicants argument of particle size taught in Yoneda et al as larger than those claimed, applicants particle size was not taught originally to be critical to the invention and the claimed particle size was derived from applicants specific examples. Furthermore, Yoneda et al merely teaches the coupling agents within a reasonable reading of the Enomoto et al reference and would not obviate the explicit overlapping particle size ranges taught in the

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Enomoto et al reference and the instant claims and the Enomoto et al reference and the Yoneda et al reference.

8. The arguments (pages 7 and 8) regarding Yoneda et al and the intended use of the materials in cement have been addressed above regarding the Enomoto et al reference.

9. In response to applicant's argument that the reason for employing coupling agents in the instant claim is for the stability of the sol rather than for slipperiness, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). Furthermore, the use of solvent compatible groups in the coupling agent would be expected to increase stability of the resulting sol as well as smaller particle sizes. The force of gravity is clearly less on smaller particles and excluding other forces such as ion interaction, etcetera; smaller particles would be expected to be more stable than larger particles.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

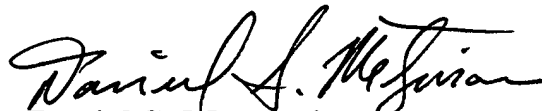
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Metzmaier whose telephone number is (703) 308-0451. The examiner can normally be reached on Monday through Friday from nine to five-thirty.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Dawson, can be reached at (703)308-2340.

Official Papers may be submitted to **Group 1700** by facsimile transmission at (703)872-9310 and Official After Final facsimile transmissions may be submitted to **Group 1700** by facsimile transmission at (703)872-9311 in accordance with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989).

Any inquiry of a general nature or relating to the status of this application should be directed to the **Group 1700** receptionist whose telephone number is (703) 308-0661.

DSM
December 17, 2001


Daniel S. Metzmaier
Primary Examiner
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